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STEM LEARNING PROCESS

01. Preview

Use your syllabus and textbook to preview the lecture topic immediately before class. Think of questions you may want to ask during the lecture.

02. Participate

Listen to the lecture and take effective notes. Try to identify important concepts you read during the "Preview" stage. Ask questions!

03. Review

Review and edit your lecture notes for clarity immediately after class. Set study goals based on concepts from lecture.

04. Study

When studying, think critically about what you are doing and why. Use your syllabus to identify which learning outcome is being used. You should understand the material, not simply memorize it!

To review each of these steps in more detail, book an appointment with your Success Coach!
success@floridapoly.edu

Adapted from Frank Christ's PLRS Learning Cycle (University of Idaho, 2011)

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Effective Note-Taking

PREVIEW

BEFORE CLASS

1. Use your syllabus to identify what subjects or sections will be covered in the lecture.

2. Skim the textbook sections relevant to that lecture and note:

    - Concepts/theorems
    - Definitions
    - Key Words (typically **bold** or *italicized* in the text)
    - Variables
    - Formulas

Outlining this information before class helps you recognize new concepts during the lecture, making note-taking more efficient.

PARTICIPATE

DURING CLASS

Don't try to write everything your instructor says! Focus on capturing:

- Explanations and justifications for each step of a problem's solution

- Important ideas that are usually indicated when an instructor says "why" or "how" during lecture

- How to identify different types of problems and the correct method of solving them

Handwritten notes are faster for complex formulas and sketching diagrams or charts from lecture. They also lead to better retention and conceptual understanding when compared to laptop notes. (Mueller, 2014)

REVIEW

AFTER CLASS

- Review your notes for clarity. Complete any incomplete thoughts, add missing details or context, and transcribe handwritten notes to a digital format, if desired.

- Connect ideas from your notes to learning objectives from the syllabus.

- Read through your notes and ask yourself, "What concepts do I understand the most?" and "What concepts are still unclear?". Use these questions to create specific goals for your study sessions.

Mueller, P. A, & D. M. Oppenheimer. "The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking." *Psychological science* 25.6 (2014): 1159–1168.

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Directed Study Session

Consider using directed study sessions to organize your studying into a series of brief, focused sessions.

Set a Goal

- 1-2 minutes
- What do you need to know by the end of this session?
- How long do you want to study for?

Study

- 30-50 minutes
- Focus on the material using a combination of your textbook, syllabus, homework, and notes.
- Think critically and ask yourself “How?” and “Why?” questions.

Break

- 10-15 minutes
- Snack, stretch, take a walk. Use this time to check your phone and move your body.

Review

- 5-10 minutes
- Assess your learning. Did you meet your goal?
- Decide: Continue studying or change subjects?

Adapted from Y.M McGuire's *Teach Students How to Learn: Strategies You Can Incorporate into Any Course to Improve Student Metacognition, Study Skills, and Motivation.* (2015)